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(PCT Article 36 and Rule 70)

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1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
 These annexes consist of a total of 5 sheet(s).

3. This report contains indications relating to the following items:

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|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input type="checkbox"/> | Certain defects in the international application |
| VIII | <input type="checkbox"/> | Certain observations on the international application |

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Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer <div style="text-align: center; margin: 10px 0;">  </div> DAVID MELHUISH Telephone No. (02) 6283 2426

BRIEF DESCRIPTION OF THE INVENTION

In one form therefore, although this may not necessarily be the only or broadest form, the invention is said to reside in a modular plastic floor assembly formed from a plurality of shaped tiles and a plurality of shaped connector tiles, the shaped tiles being substantially
5 larger than the shaped connector tiles and the shaped connector tiles being adapted to fit into interstices between the shaped tiles when the floor assembly is formed, each of the shaped tiles and the shaped connector tiles including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such
10 that their lower ends define a floor engaging plane, the shaped tiles having only a plurality of first connector means and the shaped connector tiles having only a plurality of complementary second type connector means, the first and second type connector means adapted to interengage to interlock the shaped tiles to adjacent shaped connector tiles.

15 Preferably the first and second type connector means are formed so that the shaped tiles and shaped connector tiles are spaced apart by a selected distance preferably 1 to 2 mm to take up shock load and thermal expansion and contraction.

20 There may be provided resiliently loaded fingers extending laterally on the shaped connector tiles to space the shaped tiles and shaped connector tiles apart. Such resiliently loaded fingers may be provided by integrally moulding plastic springs into the tiles. Alternatively the resiliently loaded fingers may be on the shaped tiles to engage against the connector tiles in use or there may be a combination of the resiliently loaded fingers provided on both the shaped tiles and the connector tiles sharing shock load and thermal expansion and
25 contraction.

The support array may comprise a plurality of separated support walls which can be provided in a plurality of orientations such as triangles, squares or the like.

30 There may be further included a plurality of reinforcing structures under the body integrally formed with the body and being of lesser height than the common length and joining to the items having a common length.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A modular plastic floor assembly formed from a plurality of shaped tiles and a plurality of shaped connector tiles, the shaped tiles being substantially larger than the shaped connector tiles and the shaped connector tiles being adapted to fit into interstices between the shaped tiles when the floor assembly is formed, each of the shaped tiles and the shaped connector tiles including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the shaped tiles having only a plurality of first connector means and the shaped connector tiles having only a plurality of complementary second type connector means, the first and second type connector means adapted to interengage to interlock the shaped tiles to adjacent shaped connector tiles.
2. A modular plastic floor assembly as in Claim 1 wherein the first and second type connector means are formed so that the shaped tiles and shaped connector tiles are spaced apart by a distance of from 1 to 2 mm to take up shock load and thermal expansion and contraction.
3. A modular plastic floor assembly as in Claim 1 further including resiliently loaded fingers extending laterally from the shaped connector tiles to space the shaped tiles and shaped connector tiles apart.
4. A modular plastic floor assembly as in Claim 3 wherein the resiliently loaded fingers include integrally moulding plastic springs.
5. A modular plastic floor assembly as in Claim 1 further including resiliently loaded fingers extending laterally from the shaped tiles to space the shaped tiles and shaped connector tiles apart.
6. A modular plastic floor assembly as in Claim 5 wherein the resiliently loaded fingers include integrally moulding plastic springs.

7. A modular plastic floor assembly as in Claim 1 wherein the support array includes a plurality of separated support walls.

5 8. A modular plastic floor assembly as in Claim 1 further including a plurality of reinforcing structures under the body integrally formed with the body and being of lesser height than the common length and joining to the items having a common length.

9. A modular plastic floor assembly as in Claim 8 wherein the reinforcing structures are squat cylinders or bosses.

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10. A modular plastic floor assembly as in any one preceding claim wherein the shaped tiles are formed in a shape selected from circular, octagonal, dodecagon shaped, triangular hexagon or other convenient shapes.

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11. A modular plastic floor assembly as in any one preceding claim wherein the shaped connector tiles are formed in a shape selected from circular, octagonal, dodecagons, triangles or hexagons or the like to fit into spaces between the shaped tiles.

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12. A modular plastic floor assembly as in any one preceding claim wherein the sides of the shaped tiles are formed in a shape selected convex, straight or concave and the sides of the shaped connector tiles are correspondingly concave, straight or convex.

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13. A modular plastic floor assembly as in any one preceding claim wherein the body has apertures through it to allow water to drain off the upper surface.

14. A modular plastic floor assembly as in any one preceding claim wherein each tile has a perimeter wall extending to the floor engaging plane to provide good support around the edge of the tile.

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15. A modular plastic floor assembly as in Claim 14 wherein the perimeter walls include gaps to allow water drainage beneath the tiles.

24. A modular plastic floor assembly as in any one preceding claim wherein the substantially planar upper surface includes a surface film provided by in-mould decoration to provide a surface with changed appearance, frictional properties and/or surface hardness.

5 25. A modular plastic main floor tile adapted for use with a substantially smaller connector tile, the main tile including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that
10 their lower ends define a floor engaging plane, the main tile having a plurality of only female connector means adapted to connect with male connector means on an adjacent connector tile.

26. A modular plastic main floor tile as in Claim 25 wherein the female connector comprises an arcuate recess.

15 27. A modular plastic main floor tile as in Claim 25 wherein the arcuate recess includes catch means or tabs to provide positive retention of the male connector.

20 28. A modular plastic main floor tile as in Claim 25 further including resiliently loaded fingers extending laterally from the tile to space the tiles from an adjacent connector tile.

29. A modular plastic main floor tile as in Claim 25 wherein the support array includes a plurality of separated support walls.

25 30. A modular plastic main floor tile as in Claim 25 wherein the tile is formed in a shape selected from circular, octagonal, dodecagon shaped, triangular hexagon or other convenient shapes.

30 31. A modular plastic main floor tile as in Claim 25 wherein the support array includes a plurality of separated support walls composed of two materials, one material providing a rigid structural component of the tiles and the other material providing a shock absorbent element and being the portion which defines the floor engaging plane.

32. A modular plastic main floor tile as in Claim 25 wherein the substantially planar upper surface includes a surface film provided by in-mould decoration to provide a surface with changed appearance, frictional properties and/or surface hardness.

5 33. A modular plastic floor connector tile adapted for use with a substantially larger main tile, the connector tile including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the connector tile having a plurality of only
10 male connector means adapted to connect with female connector means on an adjacent main tile.

34. A modular plastic floor connector tile as in Claim 33 wherein the male connector means include a loop adapted to engage in a female arcuate recesses in the underside of the
15 main tile.

35. A modular plastic floor connector tile as in Claim 33 further including resiliently loaded fingers extending laterally from the tile to space the connector tile from an adjacent main tile.
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36. A modular plastic floor connector tile as in Claim 33 wherein the support array includes a plurality of separated support walls.

37. A modular plastic floor connector tile as in Claim 33 wherein the connector tile is
25 formed in a shape selected from circular, octagonal, dodecagon, triangle or hexagon or the like to fit into spaces between the main tiles.

38. A modular plastic floor connector tile as in Claim 33 wherein the support array includes a plurality of separated support walls composed of two materials, one material
30 providing a rigid structural component of the tiles and the other material providing a shock absorbent element and being the portion which defines the floor engaging plane.

BRIEF DESCRIPTION OF THE INVENTION

In one form therefore, although this may not necessarily be the only or broadest form, the invention is said to reside in a modular plastic floor assembly formed from a plurality of shaped tiles and a plurality of shaped connector tiles, the shaped tiles being substantially larger than the shaped connector tiles and the shaped connector tiles being adapted to fit into interstices between the shaped tiles when the floor assembly is formed, each of the shaped tiles and the shaped connector tiles including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the shaped tiles having a plurality of first connector means and the shaped connector tiles having a plurality of complementary second type connector means, the first and second type connector means adapted to interengage to interlock the shaped tiles to adjacent shaped connector tiles.

Preferably the first and second type connector means are formed so that the shaped tiles and shaped connector tiles are spaced apart by a selected distance preferably 1 to 2 mm to take up shock load and thermal expansion and contraction.

There may be provided resiliently loaded fingers extending laterally on the shaped connector tiles to space the shaped tiles and shaped connector tiles apart. Such resiliently loaded fingers may be provided by integrally moulding plastic springs into the tiles. Alternatively the resiliently loaded fingers may be on the shaped tiles to engage against the connector tiles in use or there may be a combination of the resiliently loaded fingers provided on both the shaped tiles and the connector tiles sharing shock load and thermal expansion and contraction.

The support array may comprise a plurality of separated support walls which can be provided in a plurality of orientations such as triangles, squares or the like.

There may be further included a plurality of reinforcing structures under the body integrally formed with the body and being of lesser height than the common length and joining the free ends of the items having a common length.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A modular plastic floor assembly formed from a plurality of shaped tiles and a plurality of shaped connector tiles, the shaped tiles being substantially larger than the shaped connector tiles and the shaped connector tiles being adapted to fit into interstices between the shaped tiles when the floor assembly is formed, each of the shaped tiles and the shaped connector tiles including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the shaped tiles having a plurality of first connector means and the shaped connector tiles having a plurality of complementary second type connector means, the first and second type connector means adapted to interengage to interlock the shaped tiles to adjacent shaped connector tiles.
2. A modular plastic floor assembly as in Claim 1 wherein the first and second type connector means are formed so that the shaped tiles and shaped connector tiles are spaced apart by a distance of from 1 to 2 mm to take up shock load and thermal expansion and contraction.
3. A modular plastic floor assembly as in Claim 1 further including resiliently loaded fingers extending laterally from the shaped connector tiles to space the shaped tiles and shaped connector tiles apart.
4. A modular plastic floor assembly as in Claim 3 wherein the resiliently loaded fingers include integrally moulding plastic springs.
5. A modular plastic floor assembly as in Claim 1 further including resiliently loaded fingers extending laterally from the shaped tiles to space the shaped tiles and shaped connector tiles apart.
6. A modular plastic floor assembly as in Claim 5 wherein the resiliently loaded fingers include integrally moulding plastic springs.

7. A modular plastic floor assembly as in Claim 1 wherein the support array includes a plurality of separated support walls.
8. A modular plastic floor assembly as in Claim 1 further including a plurality of reinforcing structures under the body integrally formed with the body and being of lesser height than the common length and joining the free ends of the items having a common length.
9. A modular plastic floor assembly as in Claim 8 wherein the reinforcing structures are squat cylinders or bosses.
10. A modular plastic floor assembly as in any one preceding claim wherein the shaped tiles are formed in a shape selected from circular, octagonal, dodecagon shaped, triangular hexagon or other convenient shapes.
11. A modular plastic floor assembly as in any one preceding claim wherein the shaped connector tiles are formed in a shape selected from circular, octagonal, dodecagons, triangles or hexagons or the like to fit into spaces between the shaped tiles.
12. A modular plastic floor assembly as in any one preceding claim wherein the sides of the shaped tiles are formed in a shape selected convex, straight or concave and the sides of the shaped connector tiles are correspondingly concave, straight or convex.
13. A modular plastic floor assembly as in any one preceding claim wherein the body has apertures through it to allow water to drain off the upper surface.
14. A modular plastic floor assembly as in any one preceding claim wherein each tile has a perimeter wall extending to the floor engaging plane to provide good support around the edge of the tile.
15. A modular plastic floor assembly as in Claim 14 wherein the perimeter walls include gaps to allow water drainage beneath the tiles.

16. A modular plastic floor assembly as in Claim 1 including female connector means on the shaped tiles and co-acting male connector means on the shaped connector tiles.
17. A modular plastic floor assembly as in Claim 1 including male connector means on the shaped tiles and co-acting female connector means on the shaped connector tiles.
18. A modular plastic floor assembly as in Claim 16 or Claim 17 wherein the male connector means include loops on one of the tiles which engage in female arcuate recesses in the underside of the other tile.
19. A modular plastic floor assembly as in Claim 18 wherein the female arcuate recesses include catch means or tabs to provide positive retention of the loops in the arcuate recesses.
20. A modular plastic floor assembly as in any one preceding claim wherein the upper surface of both the shaped tiles and shaped connector tiles includes minor patterning selected from spherical dimpling, photo chemically etched texture, electrical discharge machined texture or sand-blasted matte finish.
21. A modular plastic floor assembly as in any one preceding claim further including sliding projections on the unconnected edges of shaped tiles which interengage with slots in the walls of adjacent shaped tiles to prevent the unconnected edges from lifting up above adjacent edges of adjacent tiles.
22. A modular plastic floor assembly as in any one preceding claim further including edge pieces to engage with shaped tiles and shaped connector tiles to enable a straight edged floor to be formed.
23. A modular plastic floor assembly as in any one preceding claim wherein the plurality of separated support walls are composed of two materials, one material providing a rigid structural component of the tiles and the other material providing a shock absorbent element and being the portion which defines the floor engaging plane.

24. A modular plastic floor assembly as in any one preceding claim wherein the substantially planar upper surface includes a surface film provided by in-mould decoration to provide a surface with changed appearance, frictional properties and/or surface hardness.
25. A modular plastic main floor tile including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the main tile having a plurality of only female connector means adapted to connect with male connector means on an adjacent connector tile.
26. A modular plastic main floor tile as in Claim 25 wherein the female connector comprises an arcuate recess.
27. A modular plastic main floor tile as in Claim 25 wherein the arcuate recess includes catch means or tabs to provide positive retention of the male connector.
28. A modular plastic main floor tile as in Claim 25 further including resiliently loaded fingers extending laterally from the tile to space the tiles from an adjacent connector tile.
29. A modular plastic main floor tile as in Claim 25 wherein the support array includes a plurality of separated support walls.
30. A modular plastic main floor tile as in Claim 25 wherein the tile is formed in a shape selected from circular, octagonal, dodecagon shaped, triangular hexagon or other convenient shapes.
31. A modular plastic main floor tile as in Claim 25 wherein the support array includes a plurality of separated support walls composed of two materials, one material providing a rigid structural component of the tiles and the other material providing a shock absorbent element and being the portion which defines the floor engaging plane.

32. A modular plastic main floor tile as in Claim 25 wherein the substantially planar upper surface includes a surface film provided by in-mould decoration to provide a surface with changed appearance, frictional properties and/or surface hardness.
33. A modular plastic floor connector tile including a body having a substantially planar upper surface and a support array extending from a lower surface of the body, the support array being integrally formed with the body and comprising items having a common length such that their lower ends define a floor engaging plane, the connector tile having a plurality of only male connector means adapted to connect with female connector means on an adjacent main tile.
34. A modular plastic floor connector tile as in Claim 33 wherein the male connector means include a loop adapted to engage in a female arcuate recesses in the underside of the main tile.
35. A modular plastic floor connector tile as in Claim 33 further including resiliently loaded fingers extending laterally from the tile to space the connector tile from an adjacent main tile.
36. A modular plastic floor connector tile as in Claim 33 wherein the support array includes a plurality of separated support walls.
37. A modular plastic floor connector tile as in Claim 33 wherein the connector tile is formed in a shape selected from circular, octagonal, dodecagon, triangle or hexagon or the like to fit into spaces between the main tiles.
38. A modular plastic floor connector tile as in Claim 33 wherein the support array includes a plurality of separated support walls composed of two materials, one material providing a rigid structural component of the tiles and the other material providing a shock absorbent element and being the portion which defines the floor engaging plane.